WE CLAIM:

1. A latch functioning to releasably connect a first parallel plate to a second parallel plate, said latch comprising:

a pivotable cam arm vertically mountable to the second plate;

said cam arm having a spring bias when mounted, with a return position about perpendicular to the second plate, and having a pair of opposing cam follower pins extending from the cam arm;

a pair of latch arms rigidly affixable to a first plate;

wherein a movement of the first plate towards the second plate cause the pair of latch arms to straddle the cam follower pins;

said pair of latch arms each having an inward facing mirrored upper latch piece, followed by a space sufficient to allow the cam follower pins to pass between the upper latch piece and a lower latch piece;

wherein a first open neutral position is defined as a mechanically fixed first separated distance D between the first and second plates;

a first closed position is defined as a distance D minimum between the first and second plate

wherein the cam follower pins ride on a bottom surface of the lower latch piece and rest adjacent to the upper latch piece(s) and the cam arm is biased sideways;

a second open position is defined as a distance D-x between the first and second plate wherein the cam follower pins are captured by the lower latch piece, thereby stopping the plates from moving apart greater than distance D-X;

a second closed position is defined as a start of a release cycle wherein the plates are returned to distance D minimum, the cam arm is biased vertically, and the cam follower pin travel along a bottom edge of the upper latch piece to a rest position adjacent to the upper latch piece; and

a third open position is defined as a return to the first open position wherein the cam follower pins pass down the lower latch piece and under the lower latch piece, wherein the arm is then biased back to the slightly off a 90° orientation to the second plate, and the plates are returned to distance D.

2.The latch of claim 1, wherein the spring bias further comprises a set of springs under a pair of opposing sides of a base of the cam arm.

3. The latch of claim 1, wherein the lower latch piece further comprises an angled bottom surface and a pocket formed in a top surface.

4. The latch of claim 3, wherein the upper latch piece further comprises a sloped bottom edge.

5. The latch of claim 2 further comprising at least one directional ensuring device.

6. The latch of claim 5, wherein a directional ensuring device is a leaf spring.

7. A latch comprising:

a base means functioning to anchor a cam arm in a pivotable manner about perpendicular to the base means;

a spring means functioning to bias the cam arm about perpendicular to the base means in a neutral position;

a top plate means functioning to rigidly hold a pair of opposing latch arms toward the base means, and move back and forth relative to the base means;

wherein the latch arms straddle the cam arm during the back and forth motion;

the cam arm having at least cam follower pin which rides along an upper and lower latch piece which are affixed to the latch arm;

wherein a force closing the top plate means toward the base means from a distance D to a distance D minimum cause the cam follower pin to ride up the lower latch piece and rest adjacent to the upper latch piece;

wherein a force opening the top plate means away from the base means cause the cam follower pin to catch on the lower latch piece and stop the top plate means from moving all the way to distance D;

wherein a force closing the top plate means a second time cause the cam follower pin to release from the lower latch piece and rest adjacent to the upper latch piece; and

wherein a force opening the top plate means a second time causes the cam follower pin to spring back

to its neutral position, the top plate means returning to distance D.

8. A method to control a cycle of movements between two plates, the method comprising the steps of:

mounting a spring biased pivotable arm having a cam follower pin, on a bottom plate, thereby providing a neutral position for the cam arm;

mounting a fixed pair of latch arms on a top plate so the pair of latch arms straddle the cam arm when the two plates move together;

affixing a lower latch piece and an upper latch piece on the inside of each latch arm in a mirrored fashion;

providing a fixed neutral position between the plates;

moving the plates together to a minimum distance to bias the cam arm sideways, resting the cam follower pins adjacent to the latch arms;

separating the plates wherein the cam follower pins stop against the latch arms, preventing the top plate from further movement away from the bottom plate;

moving the plates together enough to release the cam follower pin; and

returning the plates to the fixed neutral position, wherein the cam arm is biased back to the neutral position.

9. A method of testing two sets of positions on a printed circuit assemblies (PCA) in a vacuum powered test fixture, the test fixture having a top plate, a probe plate and a support plate and more than one test pin, the method comprising the steps of:

starting a testing cycle with the PCA resting on the support plate and the top plate and the probe plate being in a starting position and a distance D between the top plate and the probe plate;

moving the support plate towards the probe plate until the plates are in a first testing position, wherein a first set of positions on the PCA are in contact with a first set of pins, the plates being automatically held in the second position by a latch;

conducting a test of the first set of positions on the PCA;

moving the support plate away from the probe plate until the plates are in a second testing position, wherein a second set of positions on

the PCA are in contact with a second set of pins;

conducting a test of the second test of positions on the PCA;

moving the plates towards each other to release the latch; and

moving the plates to the starting position.

10. A latch functioning to releasably connect a first parallel plate to a second parallel plate, said latch comprising:

a pivotable cam arm vertically mountable to the second plate;

said cam arm having a spring bias when mounted, with a return position about perpendicular to the second plate, and having a pair of opposing cam follower pins extending from the cam arm;

at least one latch arm rigidly affixable to a first plate;

wherein a movement of the first plate towards the second plate cause the at least one latch arm to move next to the cam follower pins;

said at least one latch arm each having an upper latch piece, followed by a space sufficient to

allow the cam follower pins to pass between the upper latch piece and a lower latch piece;

wherein a first open neutral position is defined as a mechanically fixed first separated distance D between the first and second plates;

a first closed position is defined as a distance D minimum between the first and second plate wherein the cam follower pins ride on a bottom surface of the lower latch piece and rest adjacent to the upper latch piece(s) and the cam arm is biased sideways;

a second open position is defined as a distance D-x between the first and second plate wherein the cam follower pins are captured by the lower latch piece, thereby stopping the plates from moving apart greater than distance D-X;

a second closed position is defined as a start of a release cycle wherein the plates are returned to distance D minimum, the cam arm is biased vertically, and the cam follower pin travel along a bottom edge of the upper latch piece to a rest position adjacent to the upper latch piece; and

a third open position is defined as a return to the first open position wherein the cam follower

pins pass down the lower latch piece and under the lower latch piece, wherein the arm is then biased back to the slightly off a 90° orientation to the second plate, and the plates are returned to distance D.